

USAWC STRATEGY RESEARCH PROJECT

**GUT FEEL: DEVELOPING INTUITION IN ARMY JUNIOR OFFICERS**

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## **ABSTRACT**

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Understanding how we make intuitive decisions and how we can develop this quality in junior leaders is important for an Army confronted with unfamiliar environments, rapidly changing circumstances, and surrounded by a seemingly ubiquitous media able to draw attention on the outcomes of heretofore innocuous junior leader's decisions. This challenge is particularly salient as we consider operational unit junior company grade officer leader development. Unit level commanders retain the critical responsibility to hone the leader development edge acquired in institutional training into a war fighting capability needed to execute rapid, effective in extremis decision making. This paper examines the cognition and development of intuition in Army junior officers from a strategic perspective. It poses several questions: first, to what extent does the US Army's training and leader development process focus on developing junior officer's intuition as a viable problem solving method or does it primarily focus on improving these leader's rational, analytical abilities? Second, how can US Army commander's better train and develop junior officers to confidently rely on intuition to make decisions in a VUCA environment? The paper concludes with potential leader development processes that can assist unit commanders in developing intuition in junior officers.



## GUT FEEL: DEVELOPING INTUITION IN ARMY JUNIOR OFFICERS

### "Deuce Sixth-Sense"

Mosul, Iraq was an exceptionally dangerous place in the summer of 2005. The 1<sup>st</sup> Battalion, 24<sup>th</sup> Infantry, was one of three Stryker infantry battalions operating in Mosul that summer fighting a shadowy insurgency characterized by immense urban complexity, an invisible adversary, and a culture still largely unfamiliar to the young Americans fighting there. The battalion's charismatic commander, Lieutenant Colonel Michael 'Erik' Kurilla, aka 'Deuce Six', was the subject of a near daily blog by embedded journalist/storyteller Michael Yon. Yon's compelling descriptions of Kurilla's combat leadership and the exploits of his soldiers was active internet folklore that summer and fall. Yon's postings include an August entry that describes Colonel Kurilla's apparent extrasensory ability to spot insurgents from amongst the din and bustle of urban Mosul:

Kurilla spotted three men walking adjacent to where [his battalion S3's] Stryker had been hit with a car bomb a week prior. The three men looked suspicious to Kurilla, whose legendary sense about people is so keen that his soldiers call it the "Deuce Sixth-Sense." His read on people and situations is so uncanny it borders the bizarre. That day, Kurilla sensed "wrong" and told his soldiers to check the three men. As the Stryker dropped its ramp, one of the terrorists pulled a pistol from under his shirt.<sup>1</sup>

Kurilla's intuition had tipped him off to the danger. Nearly eight years before that experience on a Mosul street, General Charles Krulak, then Commandant of the US Marine Corps was prescient about the kind of fight, the Three Block War, Kurilla and his men would face:

It will be an asymmetrical battlefield...our enemies will not allow us to fight the Son of Desert Storm, but will try to draw us into the stepchild of Chechnya. In one moment in time, our service members will be feeding and clothing displaced refugees, providing humanitarian assistance. In the next moment, they will be holding warring tribes apart- conducting peacekeeping operations- and, finally, they will be fighting a highly lethal mid-intensity battle- all on the same day...all within three city blocks.<sup>2</sup>

Krulak understood that this kind of environment requires superb judgment and sorts of decision making skills that are not commonly or explicitly developed in either the institutional or operational Army.

The US Army finds itself four years into a global Three Block War. Army leaders at all levels are engaged in volatile, uncertain, complex, and ambiguous (VUCA) environments. Technology has facilitated dispersion on the battlefield and with that dispersion an even greater

reliance on timely, effective decisions by all leaders, but especially by those junior officers at the platoon and company level who lead the lion's share of today's combat operations. Junior officers are confronted daily with complex decision situations that have potential consequences ranging far beyond the effects of the weapons systems their small units employ.<sup>3</sup>

Young officers make rapid decisions that play out on crowded streets or markets, in tactical operations centers, and in garbage infested alleys. Some of those decisions are the big ones- the ones that involve determining the amount of force needed to cordon a town or the detailed air-space coordination necessary to prevent helicopters and unmanned aerial vehicles from colliding in flight. Many others, however, are spur of the moment sorts of intuitive decisions about which man to search, which car to stop, and which lump of debris hides an improvised explosive device. This paper explores those kinds of decisions; the intuitive ones, the types of decisions that allow leaders like Erik Kurilla to decide three men on a Mosul street corner are terrorists, and the sorts of decisions that General Krulak forecasted for a US Marine fighting the Three-Block-War. This paper is also about how unit commanders can develop systems and processes to better train and educate junior level officers to make these kinds of decisions faster and more effectively. While decision making is a requisite skill for any Army leader, establishing processes to enhance junior officer's ability to make better decisions faster is an imperative for an Army reliant on empowering junior officers.

Understanding how the Army prepares leaders for decision situations and how it can improve decision quality is immensely important for a service confronted with unfamiliar environments, rapidly changing circumstances, and surrounded by a seemingly ubiquitous media that is able to hyper-focus attention on the outcomes of heretofore innocuous junior leader's decisions. This situation is a particularly salient challenge for junior officer development in the Army's operational units. Young lieutenants and captains making on-the-ground intuitive calls can spell the difference between life and death and the success or failure of tactical operations. The institutional and operational Army partner in doctrine, processes, and approaches to develop these officer's leadership and decision making abilities.<sup>4</sup> However, despite the institutional Army's role, unit level commanders retain the responsibility to hone the basic leader development edge acquired in Army schools into a war fighting capability needed to execute rapid, effective 'in extremis' decision making. This paper examines how unit leader training processes develop these decision making abilities and poses several questions: first, to what extent does the US Army's training and leader development process focus on developing junior officer's intuition as a viable problem solving method or does it primarily focus on improving these leader's rational, analytical abilities? Second, how can Army unit level

commander's better train and develop junior officers to confidently rely on intuition to solve high-stress tactical decisions in a VUCA environment? And finally, do the answers to these questions imply that the Army needs to make changes to its training and leader development process writ large?

General Krulak discussed the importance of intuitive decision making skills and the military's apparent failure to properly develop those skills:

While analytical decision making is based on a comparison of quantitative options, recognitional [intuitive] decision making depends on a qualitative assessment of the situation based on the decider's judgment and experience....Ironically, until recently our formal schools have focused almost exclusively on training Marines in the analytical model.<sup>5</sup>

Krulak goes on to make the argument that improving intuitive decision making skills helps a leader to make faster decisions; faster decisions can help a leader to interfere with their opponent's decision making process thereby degrading the adversary's ability to accomplish his goals.<sup>6</sup> The next three sections of this paper provide summaries of varying, yet complimentary, views of the cognition of decision making. Reviewing these theoretical constructs will help us to understand the value of intuitive decision making skills and how best to develop them in young officers. After this review the paper explores Army doctrine's discussion of intuitive decision making and reviews various methods for developing and nurturing intuition. Finally, the paper concludes by offering several process-focused approaches that may improve operational unit training and leader development programs.

### The Cognition of Decision Making: Robert Lord and Karen Maher

In an overview of alternative human cognitive information processing models, Lord and Maher categorized decision making models as being either rational models or automatic response (i.e. recognitional) models. Rational models, or analytic approaches, are theoretically strong but are usually not the most descriptive in explaining the way real decision maker's act. These models tend to be data-based and assume that decision makers process information in a controlled manner using analytic procedures.<sup>7</sup> The Military Decision Making Process (MDMP) might be considered such a model. In contrast, another general category of models, automatic response approaches, emphasize recognitional or intuitive-type responses. This family of models tends to be schema-based where decision makers look for patterns corresponding to tacit knowledge or experiences. Automatic response models include limited capacity (or heuristic) approaches, expert (or recognitional) approaches, and cybernetic (or dynamic) approaches.<sup>8</sup> Each of these approaches varies in how the decision maker perceives the

environment, processes decision information, uses their short and long term memory, and how the decision maker times the decision with respect to their behavior. Figure 1 summarizes these two general categories and further subdivides them into the four basic theoretical decision making approaches mentioned above:

Features	Rational	Limited Capacity	Expert	Cybernetic
Information Requirements	Knowledge of expectancies and utilities for many alternatives	Knowledge of expectancies and utilities for a few salient alternatives	Highly selective use of schema relevant information	Selective use of current information along with recall and evaluation of past actions
Decision Process	Optimization by maximizing expected utility- evaluation of all alternatives	Simplified heuristic evaluation- termination once satisfactory alternative found	Very good alternative recognized by automatic match with information in long-term memory	Feedback or guided use of recognition or heuristic processes
Short-Term memory Requirements	Extensive capacity	Moderate capacity	Low capacity	Very Low Capacity
Long Term memory Requirements	Extensive information accessed and transferred to Short Term memory	Moderate amount of information accessed and transferred to Short Term memory	Extensive, highly organized, accessible long term memory; minimal transfer to short term memory	Varies depending on task familiarity
Method of Information Processing	Controlled, Serial, analytic	Controlled or automatic use of heuristics	Automatic	Learning; controlled or automatic
Timing of Processing	Prior to choice or behavior	Prior to choice or behavior	Prior or concurrent with choice or behavior	Intermixed with choice or behavior

Figure 1: Comparison of Decision making and Operating Features for Alternative Information Processing Models  
Adapted from Lord and Maher, Alternative Information Models and Their Implications for Theory, Research, and Practice

Figure 1.

While categorizing these models helps to frame our understanding of various methods of decision making, it would be an oversimplification to state that decision makers follow one category of models exclusively. Decision making is normally the simultaneous application of elements from various approaches. It is clear, however, that traditional training and leader development processes tend to follow along the lines of the rational models.<sup>9</sup> Since rational process models tend to be least accurate in describing how deciders really act, this assertion should cause us some concern about the overall effectiveness of Army programs for training and educating leaders in practical, ‘in extremis’, decision making.<sup>10</sup>

#### The Cognition of Decision Making: Robin Hogarth

While Lord and Maher developed categories for decision methodologies, Robin Hogarth created a model integrating ‘tacit’ and ‘deliberate’ processes that describes practical decision making more accurately. According to Hogarth, an individual’s tacit, or auto response, system

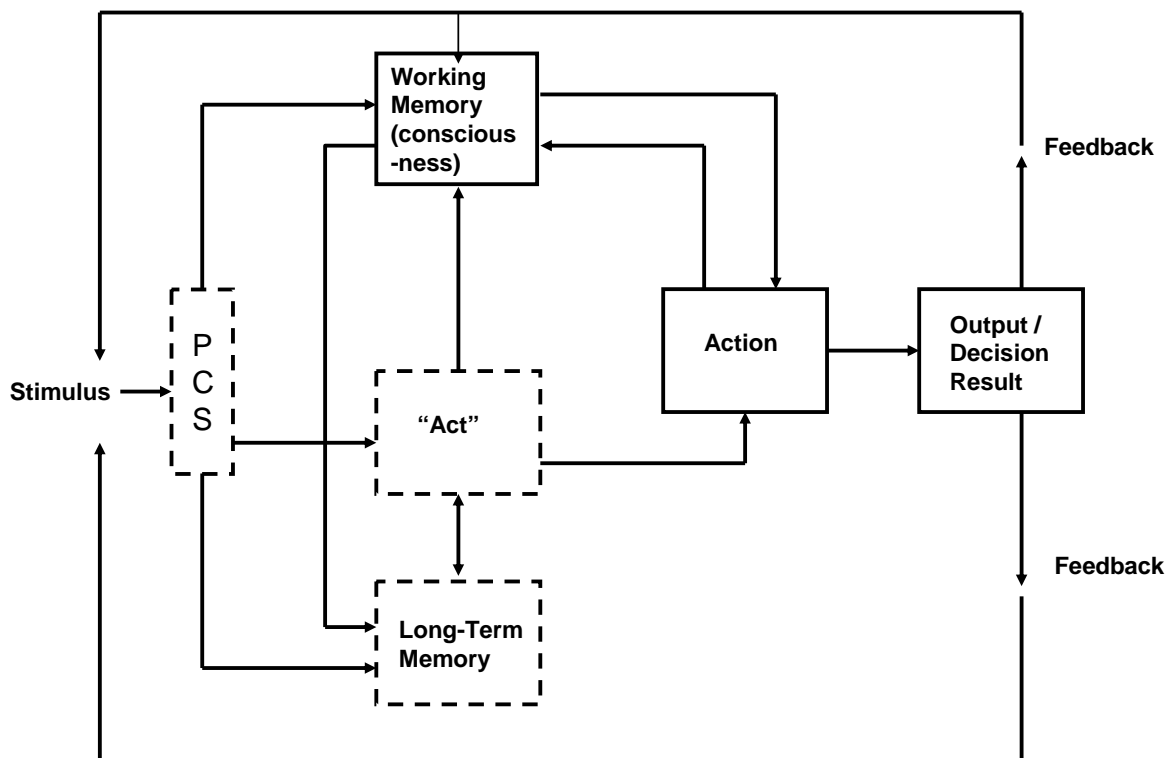


operates based on tacit knowledge, is contextually sensitive, and provides rapid, approximate responses, typically without conscious awareness.<sup>11</sup> The Army defines tacit knowledge as action-oriented, practically relevant, work-related knowledge that resists introspection or articulation.<sup>12</sup> In contrast, the deliberate, or analytical, system is more precise and rule governed and involves explicit reasoning. Intuitive responses are therefore the outputs of the tacit system and analysis is the domain of the deliberate system.<sup>13</sup>

Actual decision making blends aspects of both of these two basic processes. Once a decision maker receives situational stimulus from either external (something seen, heard, or smelled) or internal (a thought or idea) sources, their brain pre-consciously screens (PCS) cues from that stimulus to assist in routing those cues to either a conscious or unconscious decision process. The PCS is the first step toward activation of one of several mental processes leading to a decision, action, and result. The overall process works as follows: first, information from the stimulus could be recorded unconsciously for possible future use; this is the essence of tacit learning. Second, a PCS might result in the brain initiating an automatic intuitive response, bypassing conscious thought. For example, LTC Kurilla's intuitive assessment that the three men he saw on that Mosul street were insurgents was probably sparked by a pre-conscious screen of cues he received but probably could not verbalize. Once the men's hostile actions confirmed them as enemy, unconscious situational feedback cues reinforced for him that the cues he initially acted on were valid and updated his long term memory with new information he could apply to future situations. Finally, the deliberate system could overrule the tacit system's outputs if the decision maker has not already taken action on his intuition. For example, while a soldier's intuition might tell him that several men on a street corner were terrorists (if they were wearing black ski masks and carrying weapons, for example), his deliberate response system could override his intuitive response and discern that the men were instead Iraqi police whose masks prevented them from being recognized by insurgent elements.<sup>14</sup> In this case, a decision maker's deliberate system recognized that his intuitive response was inappropriate for a particular situation's cues. Hogarth posits that one's ability to **override** intuition and apply conscious attention from the deliberate system is scarce resource and is only applied when really needed. The tacit system is, therefore, the default response to stimulus.

Thus, improving a leader's confidence in their tacit system, while simultaneously educating the decision maker when to be skeptical of his or her intuition, allows them to achieve faster satisfactory outcomes. Junior officers, as well as other leaders, who improve understanding of their innate cognitive processes acquire a degree of self-awareness that translates into improved self-confidence in their decision making abilities.

When decision makers understand these processes they develop a healthy respect for the roles both their tacit (intuitive) and deliberate systems play in making decisions. Immensely complex or novel situations may present cues that do not directly correspond with a decision maker's tacit knowledge. In these cases self-aware decision makers can consciously choose to invoke calculated deliberate reasoning to fully evaluate a course of action before initiating action.<sup>15</sup> Understanding this process, outlined in Figure 2, helps us to recognize that by broadening the range of decisions handled by tacit, or intuitive, processes we may speed up decision making in a variety of circumstances. Hogarth's research provides insights that can assist Army commanders to better focus education and training processes that improve both intuition and analytically based decision making approaches.



The stimulus is an "object" or a "thought"  
 PCS=preconscious screen  
 The dotted lines indicate functions of the tacit system

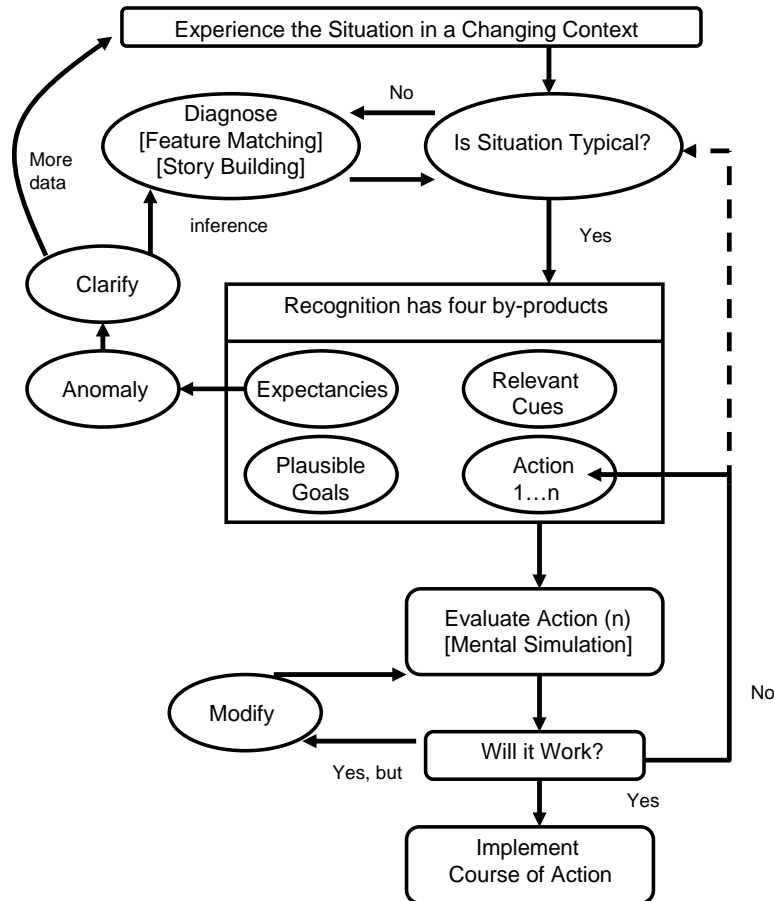
FIG 2: The deliberate and tacit systems (adapted from Hogarth, 2001)

Figure 2.

### The Cognition of Decision Making: Gary Klein

Gary Klein's cognitive model focused more specifically on the recognitional aspects of decision making. His research further reinforces the interactive nature of experience, analytic, and intuitive processes. The Recognition Primed Decision (RPD) model fuses recognitional,

intuitive elements, with aspects of deliberate, analytical, processes (Figure 3).<sup>16</sup> The first component of RPD is recognition. Recognition is the cognitive ability to tie current cues to past experiences. Recognition consists of four sub-routines: cue recognition, generation of expectancies, identification of relevant goals, and recognition of typical actions.<sup>17</sup>



**Fig 3: Integrated Version of Recognition-Primed Decision Model**  
(adapted from Klein, *Sources of Power*, 2001)

Figure 3.

Since recognition is rarely a one-to one pattern mapping of a current situation to a recognized experience based course of action, decision makers use situational cues to elicit tacit memories of previous experiences. Based on these experiential cues, the decision maker generates mental expectations of the elements typical to the situation. Those cues provide comparison points to ensure that the expected typical activities and interactions unfold as expected leading toward an acceptable decision course of action.<sup>18</sup>

Neither direct recognition nor simple cue to past experience matching is very effective for novel or complex situations. In real-world decision contexts, deciders normally draw on elements from a variety of different experiences to help them better understand the situational cues their brains are processing. They then integrate these cue-inspired elements of various experiences through a process Klein calls story-building. Story-building consists of weaving elements from number discrete experiential patterns into a new integrated pattern that accounts for the variety and complexity of the features present in the seemingly novel decision situation.<sup>19</sup>

Following this integration, the decision maker often still remains uncertain as to whether the 'story' he built to fit the decision situation is valid or not. In these cases, decision makers apply a process Klein calls mental simulation to assess a 'story's' validity. Through rapid tacit processes, decision makers mentally play out the anticipated actions and outcomes of a potential course of action to evaluate its anticipated effectiveness, akin to playing a film in the mind. If the decision maker envisions the anticipated outcome to be unsatisfactory, they adjust the film's script, or potential behavior, and replay the film and reassess the outcome. This process continues until the decision maker arrives at what he or she considers a satisfactory response to a particular situation.<sup>20</sup> Importantly, this repetitive process typically ends with the first feasible, although probably not optimal, solution to a problem. Klein determined that in most 'tactical' situations, typical of the kind faced by junior leaders in combat, optimality is not necessary. This type of satisficing seems to work well in time pressured cases.<sup>21</sup> RPD provides even more evidence of the integrated nature of analytic and intuitive decision making processes.

Karol Ross, Gary Klein and others found that applying an RPD-based model to the military planning process substantially increased planning tempo and resulted in plans that were somewhat bolder and better adapted to the unique demands of the situation as opposed to a strict MDMP model.<sup>22</sup> Acquiring effective RPD skills, however, may require years of intensive study or contextually accurate experience.<sup>23</sup> Clearly part of the educational and training challenge to develop intuitive, or expert recognitional skills, in junior officers lies both in developing an adequate repository of context specific tacit knowledge and improving the officer's awareness of their own cognitive processes.

The Army's increasingly technical, networked architecture is often touted as being a critical aid to improving decision making at all levels. There is no doubt that junior officers today possess unparalleled access to information. Yet this volume of information may actually *slow* decision making among junior officers struggling to apply the analytical skills taught in Army schools yet remain cognitively bound to the processes described above. Colonel Charles

Rogers, British Army, concluded that our increasing reliance on technology to provide dominate situational awareness has led to, “the interesting situation where advances in technology are actually speeding up the action and slowing down the decision making...”<sup>24</sup> Instead of cultivating intuition to assist in making decisions, junior officers assailed by an ever increasing torrent of situational information may become overly reliant on laborious analytical processes. Falling victim to the phenomena of ‘paralysis by analysis’, they are tempted to search for more and more information before making a decision simply because of the availability of information.<sup>25</sup> Further complicating this decision landscape, Gomport, Lachow, and Perkins point out that high stress decision situations, while mainly intuition based, become much riskier when the problem is truly new and does not correspond to previous experience. These situations demonstrate the criticality for decision makers to effectively integrate intuitive and analytical decision methods. As these authors point out, “the challenge, then, is to improve both reasoning *and* intuition, for both are indispensable. [emphasis in original]”<sup>26</sup>

Summarizing what we see to this point shows that human cognitive processes in practice follow along automatic, or intuitive, lines more than they follow calculated, rational approaches. Still, many authors highlight the importance of integrating analytical decision processes, particularly for novices, with recognitional ones for situations that do not directly align with past experiences. However, the inherent speed of intuitive decision making approaches reinforces its value as a developmental objective for Army training and leader development programs. Recognitional approaches seem particularly valid for tactical problems where situational cues can stimulate tacit knowledge leading to rapid, effective intuitive decisions.<sup>27</sup>

### The Army’s Doctrinal Basis

As mentioned in the outset to this paper, General Charles Krulak made development of intuitive skills a priority in Marine leader development after identifying it as a potential gap in the Corp’s training and leader development processes. It might be that a similar gap exists in the US Army today. To this point, this paper has explored the cognition of decision making. Next we will review the Army’s decision making doctrine and the degree to which that doctrine aligns with the ‘science’ of the process. The Army’s keystone Field Manual (FM) 5-0, Army Planning and Orders Production, describes the military decision making process and troop leading procedures as the Army’s common doctrinal approach to problem solving.<sup>28</sup>

According to Army doctrine, leaders approach decisions and problem solving either analytically or intuitively. Doctrine offers a definitive description of each: analytic decision making is characterized as a “process based on generating several alternatives solutions [to a

problem], comparing these solutions to a set of criteria, and selecting the best course of action.”<sup>29</sup> On the other hand, the FM 6-0, Mission Command: Command and Control of Army Forces, describes intuitive decision making as, “the act of reaching a conclusion which emphasizes pattern recognition based on knowledge, judgment, experience, education, intelligence, boldness, perception, and character. This approach focuses on assessment of the situation vice comparison of multiple options.”<sup>30</sup> Army operational doctrine clearly highlights the importance of intuition:

Because uncertainty and time drive most decisions, commanders emphasize intuitive decision making as the norm and develop their subordinates accordingly. Emphasizing experienced judgment and intuition over deliberate analysis, the intuitive approach helps commanders increase tempo and develops the flexibility to deal with the uncertainty that follows.”<sup>31</sup>

While several of the Army’s keystone operational manuals emphasize the value and applicability of intuition in solving problems and making decisions, the Army’s leadership and training doctrine is surprisingly mute on providing guidance about how intuition functions or how to develop intuitive decision making abilities in leaders. Doctrine reinforces the principle that the commander has the primary responsibility for leader development in operational units.<sup>32</sup> The doctrine goes on to state that among any leader development program’s goals is inculcating an agile and adaptive mindset in leaders and soldiers. However, explanations on how best to achieve this end are limited to a few comments about increasing the complexity of specific training events, incorporating combined arms training at the lowest level, and empowering junior leaders. These comments do little, aside from implying that experience and feedback are effective means, to advise commanders on how to improve junior officer’s intuitive decision making abilities.<sup>33</sup>

US Army doctrine tends to frame decision making as a selection between mutually exclusive intuitive or analytical approaches.<sup>34</sup> However, research clearly decision makers mental processes are much more integrated. Both Hogarth and Klein’s research refute the doctrinal implication that decision making is an either-or proposition; decision making is, in fact, a blending of elements from both intuitive and analytic processes, not the mutually exclusive choice discussed in FM 5-0. Junior officer leader development and unit training should be tailored to reinforce the integrated nature of actual decision making and not attempt to draw stark categorizations between analytical and intuitive processes.

### Developing and Nurturing Intuition

Understanding the role recognitional or tacit approaches play in decision making should encourage commanders to provide junior officers with training opportunities aimed at developing a greater repository of tacit knowledge and contextually accurate expertise. Hogarth discusses a relationship between expertise and intuition: “expertise and intuition are similar in that both are acquired largely through experience and, as a consequence, are domain specific.”<sup>35</sup>

The Army Research Institute, further exploring this association and its link to adaptive thinking found that the Soviet Union developed chess grandmasters by focusing on exercises aimed at embedding expert thought patterns into students, not just focusing on the mechanics of the game. Once players began to ‘think’ like experts, they applied these principles automatically, freeing their limited conscious resources to focus on developing more creative, adaptive approaches.<sup>36</sup> It seems logical that if we can improve the rate at which junior officers develop both domain-specific tacit expertise and the confidence to rely on the intuition that knowledge provides, these officers could begin to more rapidly apply their conscious faculties toward developing agile and adaptive solutions to challenging military problems, a critical capability in today’s VUCA environment.<sup>37</sup>

Ross, Lussier, and Klein discuss one of the challenges a novice faces in making decisions: “A novice often spends too much time generating courses of action and comparing them against each other instead of mentally simulating and deepening on a basically satisfactory course of action vis-à-vis features of the situation.”<sup>38</sup> Developing expert-like recognitional or intuitive skills that focus on arriving rapidly at a satisfactory course of action will provide a decision maker time to study the more difficult aspects of the situation more deliberately. The decision maker can then fine tune the course of action to address those challenges.<sup>39</sup> Expert-like decision making of this sort requires large volumes of tacit knowledge developed through a rich store of experiences, conditions seemingly paradoxical to a junior officer’s limited time in service.<sup>40</sup> Therein lays the training challenge for the Army trying to provide its young leaders the types of intuitive skills needed to prosecute the Three Block War—how to rapidly provide the experiences and develop the type of expertise that facilitates recognitional course of action development.<sup>41</sup>

Research helps us to address this challenge by pointing out that career oriented professions, such as the military, are uniquely suited to the application of expert decision making approaches.<sup>42</sup> The Army’s existing leader development processes, when applied to create the conditions for tacit learning, can provide junior officers an excellent basis for developing specific indexed structures needed to develop reliable intuitive skills. Commanders

must distill the knowledge elements they know to be critical to expert-like decision making and then focus novice leader development on rapidly acquiring those specific skills.<sup>43</sup> For example, the expertise needed for an infantry platoon leader to make intuitive route selection decisions on a combat patrol in Baghdad will differ significantly from the expertise needed by an aviator flying coverage overtop that patrol. Training and leader development for both the infantry platoon leader and the aviator must account for these detailed domain specific specialization requirements and tailor developmental plans accordingly. Leader development strategies must recognize they will only achieve high-payoff gains in developing intuition along narrow, domain specific skills. Other, broader approaches can be used to improve deliberate analytical abilities. Obtaining improvements in intuitive skills will require the Army to increase even further its commitment to assisting commanders in identifying and training expert coaches and mentors. Active coaching, coupled with consistent mentoring in both the institutional and operational Army, is critical in any attempt to quickly develop expertise in novice performers.

#### Educating Intuition in Junior Officers<sup>44</sup>

As discussed, improving junior officer's intuitive decision making skills will require commanders to implement programs, training policies, and plans designed to provide these leaders a focused, yet extensive index of experiential, tacit knowledge in a relatively compressed time period. Indexed knowledge is schema-based information that supports decision makers in rapidly constructing mental models, building and assessing stories, and determining potential cause-and-effect relationships. Klein says that RPD indexing consists of facts and causal relationships linked in terms of:

- Cues: "If I see this, it means this larger pattern probably exists in the situation."
- Expectancies: "In that pattern, I've usually seen things unfold in this way."
- Goals: "Its important in this type of situation to do this."
- Typical Actions: "I've seen this goal achieved by doing the following."<sup>45</sup>

Accelerating tacit learning and increasing the scope of a leader's indexed knowledge is at the heart of educating intuition. Hogarth contends that tacit learning occurs in environments characterized as either a 'kind' or a 'wicked'. Feedback In 'kind' environments is both timely and accurate. The knowledge learned in 'kind' environments is valid for indexing and for application to cues from other situations. Conversely, feedback in 'wicked' learning environments is neither timely nor accurate. In 'wicked' environments, novices learn the wrong lessons or draw inappropriate conclusions from the learning situation.<sup>46</sup> It is important to understand that 'kind' does not equate to easy. 'Kind' environments, while characterized by effective and accurate



feedback loops allowing for rapid learning by novice decision makers, can still retain immense complexity. Feedback loops in 'wicked' environments, on the other hand, tend to be confounded and inaccurate. The key point here is that the accuracy and timeliness of the feedback affects the quality of the tacit knowledge acquired through the learning process. A soldier can not learn from feedback they don't receive, and some feedback can act to reinforce erroneous beliefs.<sup>47</sup>

It becomes apparent that we must keep two points in mind when developing training to improve intuitive decision making: first, intuition is experienced based; and second, training experiences, both live and simulated, should be crafted in 'kind' environments. Properly trained and active coach-mentors help to ensure learning environments remain 'kind'. Coaches ensure that decisions, and decision behaviors, lead to valid results followed by rapid, accurate feedback positively reinforcing the validity of the experience. This helps junior leaders to better index the knowledge into long term memory and draw on it again as new situational cues warrant.

Some might dismiss the development of intuitive skills as something operational Army units already do.<sup>48</sup> Unfortunately, research indicates that while fully realistic simulated battlefield training scenarios do well at reinforcing and acquainting novice decision makers in applying their existing military knowledge, these situations do not appreciably aid in developing expert knowledge, the type of knowledge that becomes tacit and is most useful in intuitive decision making.<sup>49</sup>

Deliberate Practice is a training technique that can address this shortfall and aid in developing domain specific expertise. Through deliberate practice a novice develops expertise through repetitive, structured events coupled with active corrective feedback and coaching, as opposed to the more holistic performance oriented experience found in situational training exercises.<sup>50</sup>

The Army Research Institute differentiates deliberate practice from performance oriented train-as-you-fight exercises as follows:

- **Repetition.** During deliberate practice, task performance occurs repetitively rather than at its naturally occurring frequency. A goal of deliberate practice is to develop habits that operate expertly and automatically.
- **Focused Feedback.** A coach continuously evaluates the learner's task execution during deliberate practice comparing how closely the learner approximates the performance of an expert. There is a focus on the learner executes the task's critical parts not just the overall outcome of the task performance. This differs from

the train-as-you fight approach where the focus tends to be on the resultant task outcome and less on achieving that outcome via a particular form or method.

- **Immediacy of Performance.** During deliberate practice coaches require the novice to immediately repeat either the entire task or the specific elements of the task that were not done in accordance with expert norms. In a train-as-you fight performance, feedback is usually delayed to a holistic After Action Review (AAR). Often, the AAR is not followed immediately by task repetition.
- **Stop and Start.** Novices typically view deliberate practice as a series of short performances rather than a continuous flow. Again, this differentiates it from the full performance focus of a train-as-you fight approach.
- **Emphasis on Difficult Aspects.** Deliberate practice focuses on the more difficult aspects, with less focus on other more routine elements, of the overall task.
- **Focus on Areas of Weakness.** Coaches tailor deliberate practice to focus on novice's areas of weakness. In train-as-you fight approaches, novice decision makers often focus more on achieving a positive overall task outcome, avoiding known areas of weakness that could detract from that positive outcome.
- **Conscious Focus.** Although expert behavior is characterized by a lack of conscious effort, during deliberate practice the learner consciously focuses on form and the detailed elements of the task. This, coupled with task repetition, helps the learner develop expertise that will exhibit itself later during unconscious task performance. .
- **Work versus Play.** Characteristically, deliberate practice feels more like work and is more effortful than casual performance.
- **Active Coaching.** Deliberate practice requires active coaching, performance monitoring, and structured training to ensure the focus remains on the points outlined above. This differs from the traditional observer/controller function applied during train-as-you fight performances that applauds a free play against a thinking enemy.<sup>51</sup>

Deliberate practice is a simple, yet effective technique for rapidly developing contextually specific expertise. Whereas broad experiential expertise can take years to develop, deliberate practice can help quickly develop task-specific expertise, even though it requires a premium investment of coach-mentor time. It is critical trainers conduct deliberate practice in 'kind' environments since its focus is to increase tacit knowledge and improve the decision maker's automatic response system. Deliberate practice requires substantial preparation and

development of coach-mentors, experts themselves, who can provide the accurate, timely feedback needed to facilitate 'kind' learning. Integrating deliberate practice into a unit's training plan does not invalidate the value of train-as-you-fight approaches. It simply provides another tool to assist commanders in rapidly developing contextual expertise in novices. As novices begin to achieve expert-like performance levels in critical task areas, their responses become intuitive and improve the overall task performance in more holistic environments.

### Improving 'Gut Feel': An Application at the Combat Training Center

While the Army's Generating Force conducts entry level training for all junior leaders, it's in the Operational Force where those skills are honed and leaders acquire the experiential basis needed for effective intuitive decision making. This paper has examined the research and suggested methods to improve junior officer's intuitive decision making abilities. Although the Army's Generating Forces play the principle role in socializing civilians into becoming soldiers and in providing the training and educational foundations to support soldier career advancement, it is in the Operating Force where novices develop the skills and attributes to, over time, acquire expertise. As we have seen, indexed, tacit knowledge is an important element in creating the expertise needed to use intuition to solve military problems. Research shows that while true, holistic professional expertise takes years to develop and requires a broad experiential base; techniques like deliberate practice may help novices perform, and decide, like experts in critical specific contexts and domains. The final portion of this paper examines how the Operational Army could apply some of these processes to a Combat Training Center (CTC) rotation to better develop junior officer's intuition.

There is an old adage that wisdom (i.e. expertise) is the combination of knowledge and experience. Junior officers receive their basic knowledge via a range of educational institutions and entry level training programs, while being socialized to a foundation of Army values and the Warrior Ethos. The Army's high operational tempo requires commanders to develop innovative training and leader development strategies to provide experiences to develop the elements of wisdom needed in today's complex operating environments. All of this must be done in concert with these officers naturally occurring cognitive processes. To that end, the CTC's provide commanders, staffs, and soldiers realistic operational experiences focused on developing leaders and improving unit's combat readiness.<sup>52</sup> The CTC's place leader development as a primary objective of the rotational experience and state that their goal is to, "develop flexible leaders able quickly to assess ambiguous situations, make decisions, and act on them."<sup>53</sup> Coupling the CTC's 'train-as-you-fight' performance-oriented focus with elements of deliberate

practice might more rapidly develop junior officers by combining elements of recognitional processes with the training center's already robust focus on analytical processes.

To improve intuitive decision making skills during a CTC rotation would require a rebalancing of the broad, existing, multi-echelon collective training experience with periods of targeted deliberate practice aimed at specific decision scenarios for individual junior officer leaders in coordination with a recognized expert coach. This process would need to be much more intense than the current Mission Rehearsal Exercise integration of situational training exercises (i.e. lane-training events) into an overall unit rotation. The Observer-Controller (O/C) role already embraces many of the active coaching skills need to provide deliberate practice. However, the CTC's aim, and the OC's role in supporting that aim, is to provide a broad, stressful, performance oriented, multi-echelon experience. This focus influences leaders to exercise and rely on their individual strengths instead of working to improve their individual weaknesses. As the description of deliberate practice outlines, context specific expertise, and therefore individual intuition, is developed best when training emphasizes a task's more difficult aspects coupled with repetitive iterations and intensive coaching. The Combat Training Centers have the structure, resources, and resident expertise of coach-mentors to provide unit commander the ability to operationalize many of the points discussed in this paper. Further research and development is needed to fully integrate these processes across a CTC rotational experience.

### Conclusion: Taking Advantage of our 'Gut Feel'

Great commanders intuitively appreciate the value of their 'sixth-sense' or 'gut-feel'. However, Army training methods still approach the development of intuition as a seemingly natural byproduct of traditional training processes. Although intuition is a quality reliant on hard-to-describe tacit knowledge, it is a capability that can be developed. While we can view officer leader development as the holistic improvement of an officer's technical, tactical, interpersonal, and conceptual abilities, unit level leader development processes often tend to over emphasize the technical and tactical domains of this function. Educating a junior officer as to when it is appropriate to rely on their intuition is an important aspect of conceptual leader development. With this in mind, this paper has suggested concepts like deliberate practice, 'kind' environment training, and the use of coach-mentors to develop expert-like behaviors to improve junior officer recognitional decision making abilities. Integrating these tools into the Army's leader development processes is an important step in explicitly addressing the development of junior officer intuition and the application of that ability to decision making. Warfare and decision

situations are becoming more complex for all leaders. This complexity and its concomitant requirement to empower junior officers to make decisions in a challenging, a high-stakes environment demands we provide them a full kitbag of decision making tools. This paper has described one of these decision tools and provided some insight on how to better develop our leaders to use it in the continuing Three Block War.

## Endnotes

<sup>1</sup> Yon, Michael. "Gates of Fire." 31 August 2005. Linked from *Michael Yon: Online Magazine*. Available from <http://www.michaelyon.blogspot.com/2005/08/gates-of-fire.html>. Internet. Accessed 15 December 2006.

<sup>2</sup> Krulak, Charles C., "The Three Block War: Fighting in Urban Areas" *Vital Speeches of the Day* (15 December 1997): 139.

<sup>3</sup> Krulak, Charles C., "Cultivating Intuitive Decision Making" *Marine Corps Gazette* (May 1999): 18.

<sup>4</sup> This paper will refer to the 'institutional' and 'operational' Army and synonymously to the 'Generating Force' and the 'Operating Force' respectively. For this paper's purpose, the institutional Army refers to those Army processes, organizations, and institutions within US Army Training and Doctrine Command (TRADOC) and the Army's pre-commissioning sources (USMA, ROTC, and OCS). The operational Army, or Operating Force, refers to other non-TRADOC Army units traditionally deployed to conduct operations worldwide in support of both service and joint commanders. The author recognizes the fact that heretofore traditional institutional forces often serve operational roles, particularly within the context of Operations Enduring and Iraqi Freedom.

<sup>5</sup> Ibid., 19.

<sup>6</sup> Ibid.

<sup>7</sup> Lord and Maher describe four separate categories of information processing models and their respective application to attribution theory, decision making and performance appraisal: rational models, limited capacity models, expert models, and cybernetic models. The authors evaluate each model against four criteria: theoretical utility, descriptive accuracy, prescriptive value, and the model's fit to typical information processing. The authors conclude that rational models tend to be distinctive in their data-fed, optimality focused, bottom up approach while the other three, while distinct in theory, have commonality in that they tend to be schema-directed or top-down models. Lord, Robert G., and Maher, Karen J. "Alternative Information-Processing Models and Their Implications for Theory, Research, and Practice." *The Academy of Management Review* 15 (January 1990): 24.

<sup>8</sup> Ibid.

<sup>9</sup> Many junior level officers would recognize the Military Decision Making Process as such an approach.

<sup>10</sup> Lord, Robert G., and Maher, 18-20.

<sup>11</sup> Hogarth, Robin M. "Deciding Analytically or Trusting Your Intuition? The Advantages and Disadvantages of Analytic and Intuitive Thought." In *The Routines of Decision Making*, ed. Tilman Betsch and Susanne Haberstroh, 68-69. London: Lawrence Erlbaum Associates, 2005.

<sup>12</sup> U.S. Army Research Institute for the Behavioral and Social Sciences. *Tacit Knowledge in Military Leadership: Some Research Products and their Application to Leadership Development*. Alexandria, Va: U.S. Army Research Institute for the Behavioral and Social Sciences, May 1998, 2.

<sup>13</sup> Hogarth, 68-69.

<sup>14</sup> Ibid., 70.

<sup>15</sup> Ibid.

<sup>16</sup> Gary Klein. *Sources of Power: How People Make Decisions*. Cambridge: The MIT Press, 2001, 24.

<sup>17</sup> Ibid.

<sup>18</sup> Ross, Karol G., Lussier, James W., and Klein, Gary. "From the Recognition Primed Decision Model to Training." In *The Routines of Decision Making*, ed. Tilman Betsch and Susanne Haberstroh, 327-332. London: Lawrence Erlbaum Associates, 2005.

<sup>19</sup> Ibid., 328.

<sup>20</sup> Ibid., 329.

<sup>21</sup> *Sources of Power*, 19.

<sup>22</sup> Ross, Karol G., et al. "The Recognition-Primed Decision Model." *Military Review* 84 (July-August 2004): 6.

<sup>23</sup> Lord and Maher, 15.

<sup>24</sup> Rogers, Charles T., "Intuition: An Imperative of Command." *Military Review* (March 1994): 39..

<sup>25</sup> William Duggan, basing his conclusions on work done by Dr. Gary Klein and the insights of the classic war theorist, Carl von Clausewitz, reached a similar conclusion, "We have so many advanced methods of analysis and decision-making today, that we sometimes forget they are aids to problem solving, not the problem solver's themselves." Duggan, William, *Coup D'Oeil: Strategic Intuition in Army Planning*. Carlisle Barracks: U.S. Army War College Strategic Studies Institute, November, 2005, 3.

<sup>26</sup> David C. Gomport, Irving Lachow, and Justin Perkins. *Battle-Wise: Seeking Time-Information Superiority in Networked Warfare*. Washington D.C.: National Defense University Press, 2006, 21.

<sup>27</sup> The comments of one senior officer supports this point, “In short, the leader who consistently makes faster decisions, can interfere with his opponents’ own decision making process and effectively degrade his ability to inflict his will and continue the struggle.” Krulak, Charles C., “Cultivating Intuitive Decision Making”, 19.

<sup>28</sup> U.S. Department of the Army. *Army Planning and Orders Production*. Field Manual 5-0. Washington D.C: Headquarters, Department of the Army, 20 January 2005, v.

<sup>29</sup> U.S. Department of the Army. *Mission Command: Command and Control of Army Forces*. Field Manual 6-0. Washington D.C: Headquarters, Department of the Army, 11 August 2003, 2-4.

<sup>30</sup> Ibid.

<sup>31</sup> Ibid.,2-12.

<sup>32</sup> U.S. Department of the Army. *Army Training and Leader Development*. Army Regulation 350-1. Washington D.C: Headquarters, Department of the Army, 13 January 2006, 8.

<sup>33</sup> In short, US Army doctrine seems to treat the development of intuition as if it were an intuitive act. Training events, professional developmental opportunities, and other experiences combine to develop intuitive skills but nowhere does doctrine explicitly describe that development. While doctrine may be silent on the subject there is a range of business and academic discussion on how to develop intuitive decision making skills. FM 7-1, Battle Focused Training, spells out the objectives of Army leader development including developing leaders who exhibit agile and adaptive mindsets, possess leader competencies, are self-aware, have a warrior ethos, and are life-long learners. The manual describes conditions, which if met, will provide experiences that could provide the sorts of indexed knowledge Klein refers to in Recognition Primed Decision Making and improve the sort of tacit knowledge Hogarth refers to in automatic processes. Unfortunately, the manual never ties these elements toward the decision making process outlined in FM 5-0 or FM 6-0. U.S. Department of the Army. *Battle Focused Training*. Field Manual 7-1. Washington D.C: Headquarters, Department of the Army, 20 January 2005, 1-19.

<sup>34</sup> U.S. Department of the Army. *Army Planning and Orders Production*. Field Manual 5-0. Washington D.C: Headquarters, Department of the Army, September 2003, A-3.

<sup>35</sup> Hogarth, Robin M. *Educating Intuition*. Chicago: The University of Chicago Press, 2001, 204. Hogarth also states: It’s important to note that while there is similarity, there remain important differences between intuition and expertise. Among these differences is the fact that expertise is often discussed in terms of levels, whereas this type of scaling makes little sense for intuition; and validation of expertise is often an objective process against established criteria whereas intuition has little comparable method of validation. These notable differences aside, discussing intuition in terms of a skills-domain expertise is still a useful construct for understanding how we can better develop the quality in junior officers.

<sup>36</sup> U.S. Army Research Institute for the Behavioral and Social Sciences. Research Report 1824, *Assessment of the Think Like a Commander Training Program*. Fort Knox, KY: U.S. Army Research Institute for the Behavioral and Social Sciences, July 2004, 2.

<sup>37</sup> This is an application of Hogarth's theory in that by broadening the range of decisions addressed through the tacit response system one can reserve the deliberate domain, for those complex or truly novel situations requiring conscious processing.

<sup>38</sup> Ross, Karol G., Lussier, James W., and Klein, Gary. "From the Recognition Primed Decision Model to Training.", 329.

<sup>39</sup> Ibid., 330.

<sup>40</sup> Ibid., 327.

<sup>41</sup> For further analysis on developing agile leaders and through the Army's Generating Forces, see LTC Chris P. Gehler, *Agile Leaders, Agile Institutions: Educating Adaptive and Innovative Leaders for Today and Tomorrow*, Strategy Research Paper (Carlisle Barracks: US Army War College, 18 March 2005).

<sup>42</sup> Lord and Maher, 15.

<sup>43</sup> Broader holistic expertise will only come with time. The research, however, seems to indicate that novices can develop narrow focused expertise that allows recognitional processes to dominate the decision making process that facilitates development of a basic satisfactory course of action. This can be particularly important in tactical situations where time is of the essence.

<sup>44</sup> Hogarth, Robin M. *Educating Intuition*. Chicago: The University of Chicago Press, 2001.

<sup>45</sup> Ibid., 330.

<sup>46</sup> Hogarth, Robin M. "Deciding Analytically or Trusting Your Intuition? The Advantages and Disadvantages of Analytic and Intuitive Thought.." 71.

<sup>47</sup> Ibid.

<sup>48</sup> For example, doesn't a large scale training exercise conducted in a train-as-you-fight environment provide junior leaders an indexed catalog of tacit knowledge? Certainly these events have value and develop certain aspects of tacit knowledge. The Army's success in Operation Dessert Storm and the early fight to Baghdad phase of Operation Iraqi Freedom, is testimony to the value of traditional approaches, each of which develop some aspect of intuitive decision making skills.

<sup>49</sup> U.S. Army Research Institute for the Behavioral and Social Sciences. Research Product 2003-02, *Think Like a Commander Prototype: Instructors Guide to Adaptive Thinking*. Fort Knox, KY: U.S. Army Research Institute for the Behavioral and Social Sciences, March 2003, 8.

<sup>50</sup> Ibid.

<sup>51</sup> Ibid.

<sup>52</sup> U.S. Department of the Army. *Combat Training Center Program*. Army Regulation 350-50. Washington D.C: Headquarters, Department of the Army, 24 January 2003, 1.



<sup>53</sup> Ibid., 4.

